LISTING OF THE CLAIMS

This listing of claims, amended as indicated below, is to replace all prior versions, and listings, of claims in the application

1. (Previously Presented) A casting roll for the continuous casting of thin metallic strips, in a roll casting installation, the roll comprising:

a roll core having an outer lateral surface:

an annular roll shell which surrounds the roll core and includes an inner lateral surface opposite the outer lateral surface of the core, wherein:

the roll shell is shrunk onto the roll core so that the outer surface of the roll core and the inner surface of the roll shell are in contact substantially over the respective entire surfaces;

at least one of the lateral surfaces has elevations and depressions forming a surface structure thereon having a roughness (R_Z) on the surface of between about 2 µm and about1500 µm; and

at least some of the elevations and depressions are oriented in the direction of a rotational axis of the casting-roll.

2. (Canceled)

3. (Previously Presented) The casting roll as claimed in Claim 1, wherein the roughness (R_Z) is between 10 µm and 500 µm.

4. (Previously Presented) The casting roll as claimed in claim 1, wherein:

the elevations and depressions are in and directly around a casting-roll plane of symmetry which is normal to the rotational axis and is substantially along the entire circumference of one of the lateral surfaces with a radial extent of between about 2 µm and about 1500 µm; and

the elevations and depressions are oriented in the circumferential direction.

5. (Canceled)

6. (Previously Presented) The casting roll as claimed in claim 1, wherein the elevations and depressions form supporting surfaces which are directed substantially radially and in the direction of the casting-roll axis and have a longitudinal extent less than or equal to the lateral-surface length (L).

7. (Previously Presented) The casting roll as claimed in claim 1, wherein:

in the region of the lateral surfaces which lie opposite one another, the roll core and the annular roll shell are formed from materials of different hardness, and

at least the lateral surface of the core or the shell which has the higher lateral surface hardness is provided with the roughness (R_Z).

8. (Previously Presented) The casting roll as claimed in claim 1, wherein the roll core is comprised of steel and the annular roll shell is comprised of Cu or a Cu alloy.

9. (Previously Presented) The casting roll as claimed claim 1, further comprising a joining layer arranged between the roll core and the roll shell.

10. (Previously Presented) The casting roll as claimed in Claim 9, wherein the material which forms the joining layer is deposited on a lateral surface which does not have the roughness (R_Z).

11. (Previously Presented) The casting roll as claimed in claim 10, wherein the joining layer is comprised of a metal or a metal alloy.

12. (Previously Presented) The casting roll as claimed in claim 9, further comprising wear-resistant granules embedded in the joining layer.

13. (Previously Presented) The casting roll as claimed in Claim 12, wherein the wear-resistant granules are comprised of metal oxides.

14. (Previously Presented) The casting roll as claimed in Claim 12, wherein the wear-resistant granules are comprised of carbide grains or platelets.

15. (Previously Presented) The casting roll as claimed in Claim 12, wherein the wear-resistant granules have a grain size less than 40 µm.

16. (Previously Presented) The casting roll as claimed in claim 1, wherein the surface structure is formed by:

grooves distributed over the outer lateral surface of the roll core and parallel to the casting-roll axis; and

securing bars fitted into the grooves, the bars projecting between about 2 µm and about 1500 µm above the lateral surface of the roll core in the radial direction; and

the securing bars are pressed into the lateral surface of the roll shell when the roll shell is shrink fitted onto the roll core.

17. (Previously Presented) The casting roll as claimed in Claim 16, wherein:

the securing bars project between 500 µm and 15 mm above the lateral surface of the roll core in the radial direction; and

the inner lateral surface of the roll shell includes second grooves which lie opposite the grooves in the lateral surface of the roll core and respective grooves in the opposite lateral surfaces lie opposite one another and the respective grooves opposite one another accommodate one of the securing bars.

18. (Previously Presented) The casting roll as claimed in Claim 16 wherein fewer than 16 of the securing bars and grooves are distributed over the roll core.

19. (Previously Presented) The casting roll as claimed in claim 16, wherein the grooves and the securing bars have a length along the axis that is shorter than a lateral-surface length of the roll core.

20-22. (Canceled)

23. (Previously Presented) The process as claimed in Claim 52 further comprising, producing the elevations or depressions to define a surface structure in which the at least one lateral surface has a roughness (R_Z) of between 10 μm and 500 μm.

24. (Previously Presented) The process as claimed in claim 52, wherein the elevations or depressions are formed to have supporting surfaces which are directed substantially radially and have a longitudinal extent in the direction of the casting-roll axis which is less than or equal to a lateral-surface length in the direction of the axis.

25. (Previously Presented) The process as claimed in claim 52, further comprising producing the roll core and the annular roll shell from respective materials of different hardness at least at the respective lateral surfaces, and forming the predetermined roughness (R_Z) on the one of the roll core and the roll shell having the higher lateral-surface hardness.

26. (Previously Presented) The process as claimed in Claim 25, further comprising applying the roughness by knurling, forging or milling the respective lateral surface.

27. (Previously Presented) The process as claimed in claim 52, wherein the roll core at least at the outer lateral surface is of steel and the annular roll shell at least at the inner lateral surface is of Cu or a Cu alloy.

28. (Previously Presented) The process as claimed in claim 52, further comprising depositing a joining layer on one of the opposing lateral surfaces.

29. (Previously Presented) The process as claimed in claim 52, wherein the predetermined roughness (R_Z) is applied to one of the lateral surfaces and the method further comprises the step of depositing a joining layer on the other lateral surface.

30. (Previously Presented) The process as claimed in claim 28, wherein the joining layer is deposited by electrodeposition.

31. (Previously Presented) The process as claimed in claim 28, wherein the joining layer is deposited by plasma deposition.

32. (Previously Presented) The process as claimed in claim 28, wherein the joining layer is comprised of a metal or a metal alloy.

33. (Previously Presented) The process as claimed in claim 28, further comprising incorporating wear-resistant granules in the joining layer.

34. (Previously Presented) The process as claimed in Claim 33, further comprising the step of incorporating metal oxides in the joining layer as the wear-resistant granules.

35. (Previously Presented) The process as claimed in Claim 33, further comprising the step of incorporating carbide grains or carbide platelets in the joining layer as the wear-resistant granules.

36. (Previously Presented) The process as claimed in claim 33, wherein the wear-resistant granules have a grain size of less than 40 μm.

37. (Previously Presented) A process for producing a casting roll for the continuous casting of thin metallic strips, in a roll casting process, wherein the casting roll has a roll core with an outer lateral surface and an annular roll shell which surrounds the roll core and has an inner lateral surface and the roll has a central casting-roll axis, the method comprising the steps of:

preparing at least one of the lateral surfaces of the roll core and the roll shell for joining by shrink-fitting by forming grooves on the outer lateral surface of the roll core to extend parallel to the casting-roll axis;

fitting securing bars into the grooves wherein the grooves and the bars therein are so sized and shaped that the bars project above the outer lateral surface of the roll core in the radial direction;

then drawing the roll shell onto the roll core while holding the roll shell at a temperature which is higher than that of the roll core for producing a shrink-fit connection between the securing bars and the roll shell such that the securing bars are pressed into the inner lateral surface of the roll shell sufficiently that the lateral surfaces are substantially flush with each other; and

producing at least one sealed join between the roll core and the roll shell.

38. (Previously Presented) A process as claimed in claim 52, further comprising permitting the roll shell to cool after being drawn onto the roll core, so that the roll shell is shrink fitted on the roll core, with the lateral surfaces in a substantially flush relationship.

39. (Previously Presented) The process as claimed in claim 27, wherein the roughness is formed on the outer lateral surface.

40. (Previously Presented) A process as claimed in claim 34, wherein the metal oxides comprise aluminum oxide or zirconium oxide.

41. (Previously Presented) A process as claimed in claim 35, wherein the carbide comprises titanium carbide, tungsten carbide or silicon carbide.

42. (Previously Presented) A process as claimed in claim 33, wherein the wear-resistant granules have a grain size of less than 10 μm.

43. (Previously Presented) A process as claimed in claim 37, further comprising permitting the roll shell to cool after being drawn onto the roll core, so that the roll shell is shrink fitted on the roll core.

44. (Previously Presented) A process as claimed in claim 37, wherein the grooves and the bars therein are so sized and shaped that the bars project between 500 μm and 15 mm above the outer lateral surface.

45. (Previously Presented) The casting roll as claimed in claim 9, wherein the joining layer is deposited on one of the two lateral surfaces.

46. (Previously Presented) The casting roll as claimed in claim 9, wherein the joining layer is comprised of a metal or a metal alloy.

47. (Previously Presented) The casting roll as claimed in claim 13, wherein the metal oxides comprise aluminum oxide or zirconium oxide.

48. (Previously Presented) The casting roll as claimed in claim 14, wherein the carbide comprises titanium carbide, tungsten carbide or silicon carbide.

49. (Previously Presented) The casting roll as claimed in claim 12, wherein the wear-resistant granules have a grain size less than 10 μm.

50. (Previously Presented) The casting roll as claimed in claim 16, wherein fewer than eight of the securing bars and grooves are distributed over the roll core.

51. (Previously Presented) The casting roll as claimed in claim 17, wherein the sum of the depths of the two respective grooves is greater than the height of the securing bar which they accommodate.

52. (Previously Presented) A process for producing a casting roll for the continuous casting of thin metallic strips, using a roll casting process, wherein the casting roll is comprised of a roll core with an outer lateral surface and an annular roll shell which surrounds the roll core and has an inner

lateral surface adjacent to the outer surface of the roll core, and is further comprised of a central rotational axis, the method comprising the steps of:

preparing at least one of the adjacent surfaces by forming radially extending elevations or depressions thereon, at least some of which are oriented in the direction of the casting-roll axis, to define a surface structure characterized by a roughness (Rz) of between about 2 μm and about 1500 μm,

then drawing the roll shell onto the roll core so that the outer and inner lateral surfaces oppose each other, while holding the roll shell at a temperature which is higher than the temperature of the roll core.

53. (New) A casting roll for the continuous casting of thin metallic strips, in a roll casting installation, the roll comprising:

a roll core having an outer lateral surface:

an annular roll shell which surrounds the roll core and includes an inner lateral surface opposite the outer lateral surface of the core, wherein:

one of the lateral surfaces has elevations and depressions forming a surface roughness thereon;

at least some of the elevations and depressions are oriented in the direction of a rotational axis of the casting-roll; and

the roll shell is shrunk onto the roll core so that the outer surface of the roll core and the inner surface of the roll shell are in contact substantially over the respective entire surfaces.

54. (New) A casting roll as claimed in claim 53, wherein the surface roughness on the one surface is pressed into the opposing surface.

55. (New) A process for producing a casting roll for the continuous casting of thin metallic strips, using a roll casting process, wherein the casting roll is comprised of a roll core with an outer lateral surface and an annular roll shell which surrounds the roll core and has an inner lateral surface adjacent to the outer surface of the roll core, and is further comprised of a central rotational axis, the method comprising the steps of:

preparing one of the adjacent surfaces by forming radially extending elevations or depressions thereon, at least some of which are oriented in the direction of the casting-roll axis, to define a surface roughness thereon;

then drawing the roll shell onto the roll core so that the outer and inner lateral surfaces oppose each other, while holding the roll shell at a temperature which is higher than the temperature of the roll core.

56. (New) A method as claimed in claim 55, wherein the surface roughness on the one surface is pressed into the opposing surface.